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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,052	11/01/2005	Nobutoshi Arai	0020-5354PUS1	6379
2292	7590	04/16/2007	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			VALENTINE, JAMI M	
PO BOX 747			ART UNIT	PAPER NUMBER
FALLS CHURCH, VA 22040-0747			2815	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
31 DAYS		04/16/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 31 DAYS from 04/16/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/528,052	ARAI ET AL.
	Examiner	Art Unit
	Jami M. Valentine, Ph.D.	2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 17 March 2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-32 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) \_\_\_\_\_ is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) 1-32 are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.
2. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
3. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

**Group I**, claim(s) 1-3, drawn to a resistance-changing function body including two different materials.

**Group II**, claim(s) 4, drawn to a memory including the resistance-changing function body of claim 1 and a rectifying function body.

**Group III**, claim(s) 5, drawn to a memory including the resistance-changing function body of claim 1 and a select transistor.

**Group IV**, claim(s) 6, drawn to a memory including at least two memory cells including the resistance-changing function body of claim 1 with electrically connected electrodes.

**Group V**, claim(s) 7, drawn to a memory including at least five memory cells including the resistance-changing function body of claim 1.

**Group VI**, claim(s) 8, drawn to a memory including at least two memory cells including the resistance-changing function body of claim 1 with the first substance mutually adjacent.

**Group VII**, claim(s) 9, drawn to a memory including at least two memory cells including the resistance-changing function body of claim 1 and a rectifying function body.

**Group VIII**, claim(s) 10 and 13-19, drawn to the resistance-changing function body of claim 1 and a third electrode.

**Group IX**, claim(s) 11, drawn to the resistance-changing function body of claim 1 with varying electrical characteristics.

**Group X**, claim(s) 12, drawn to the resistance-changing function body of claim 1 with two kinds of particles.

**Group XI**, claim(s) 20, drawn to a memory including the resistance-changing function body of claim 10 and where the electrodes are diffusion regions.

**Group XII**, claim(s) 21, drawn to a memory including the resistance-changing function body of claim 10 where the electrodes are conductors.

**Group XIII**, claim(s) 22-23, drawn to a memory including the resistance-changing function body of claim 10 and a fourth electrode.

**Group XIV**, claim(s) 24-26 and 28, drawn to a method for manufacturing the resistance-changing function body of claim 2.

**Group XV**, claim(s) 27 and 29, drawn to a memory including the resistance-changing function body of claim 1

**Group XVI**, claim(s) 30-32, drawn to a resistance-changing function body including three different materials

4. The inventions listed as Groups I-XVI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

5. Unity of invention exists only when there is a technical relationship among the claimed inventions involving one or more special technical features. The term "special technical features" is defined as meaning those technical features that define a contribution which each of the inventions considered as a whole, makes over the prior art. (MPEP 1850)

6. The group of inventions of claims 1-32 are linked only by the technical feature "a resistance-changing function body comprising an object made of a first substance and interposed between first and second electrodes, and particles of a second substance arranged within the

object." However, this technical feature cannot be a special technical feature since it is disclosed in prior art document Kado et al. (US Patent No 5,731,598), (figure 1 and column 6 lines 57 through column 7 line 4). Therefore, there is no special technical feature so linking the group of inventions of claims 1-32 as to form a single general inventive concept.

7. Consequently, the group of inventions of claims 1-32 do not satisfy the requirement of unity of invention. Considering the specific modes of the inventions of the independent claims, the international application contains two groups of inventions of claims 1-29 and claims 30-32.

8. Next, the unity of invention of claims 1-29 will be examined. The group of inventions of claims 1-29 are linked only by the technical feature "a resistance-changing function body comprising an object made of a first substance interposed between first and second electrodes, and particles of a second substance arranged within the object where the electrical resistance between the first and second electrode is changed before and after applying a specific voltage between the first and second electrodes". However, this technical feature is disclosed in the above prior art document, column 8 lines 31-37. Therefore, considering the specific modes of the inventions of the claims, the inventions of claims 1-29 are divided into 11 groups of inventions:

- the inventions of claims 1-3, 24-26, 28;
- the invention of claim 4;
- the invention of claim 5;
- the invention of claim 6;
- the invention of claim 7;
- the invention of claim 8;
- the invention of claim 9;
- the inventions of claims 10, 13-23;
- the invention of claim 11;
- the invention of claim 12;
- and the inventions of claims 27, 29.

9. Next, the unity of invention of claims 1-3, 24-26, 28 will be examined. The group of inventions of claims 1-3, 24-26, 28 are linked only by the technical feature "a resistance-changing function body characterized in that the body of the first substance is an insulator, and the particles of the second substance are conductive particles". However, this technical feature is disclosed in the above prior art document, column 8 lines 5-10.

10. Therefore, considering the specific modes of the inventions of the claims, the inventions of claims 1-3, 24-26, 28 are divided into 2 groups of inventions:

- the inventions of claims 1-3;
- the inventions of claims 24-26, 28.

11. Next, the unity of invention of claims 10, 13-23 will be examined. The group of inventions of claims 10, 13-23 are linked only by the technical feature "a resistance-changing function body characterized in that a third electrode to which a voltage can be applied in a direction generally perpendicular to the direction in which the first and second L electrode are opposed to each other is adjacent to the body of the first substance". However, this technical feature is disclosed in the above prior art document, column 8, lines 11-17.

12. Therefore, considering the specific modes of the inventions of the claims, the inventions of claims 10, 13-23 are divided into 4 groups of inventions:

- the inventions of claims 10, 13-19;
- the invention of claim 20;
- the invention of claim 21;
- the inventions of claims 22, 23.

13. Consequently, the international application contains 16 groups of inventions not satisfying the requirement of unity of invention.

14. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

15. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jami M. Valentine, Ph.D. whose telephone number is (571) 272-9786. The examiner can normally be reached on Mon-Thurs 8:30am-7pm EST.

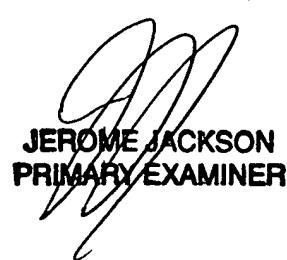
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jami M Valentine, Ph.D.  
Examiner  
Art Unit 2815

4/9/2007



JEROME JACKSON  
PRIMARY EXAMINER